

# (12) UK Patent Application (19) GB (11) 2 328 642 (13) A

(43) Date of A Publication 03.03.1999

(21) Application No 8818437.7

(22) Date of Filing 24.08.1998

(30) Priority Data

(31) 19738091

(32) 01.09.1997

(33) DE

(71) Applicant(s)

Robert Bosch GmbH  
(Incorporated in the Federal Republic of Germany)  
Wernerstrasse 1, Stuttgart-Feuerbach,  
D-70442 Stuttgart 30, Federal Republic of Germany

(72) Inventor(s)

Juergen Loewe

(74) Agent and/or Address for Service

A A Thornton & Co  
Northumberland House, 303-306 High Holborn,  
LONDON, WC1V 7LE, United Kingdom

(51) INT CL<sup>6</sup>

B27C 5/10, B27G 3/00

(52) UK CL (Edition Q)

B5L L43Q

(56) Documents Cited

EP 0678264 A1

WO 84/01320 A1

US 5878965 A

US 4821365 A

(58) Field of Search

UK CL (Edition P) B5L L32 L38 L43Q

INT CL<sup>6</sup> B27C 5/10, B27G 3/00

(54) Abstract Title

**Dust extracting system for routing cutters**

(57) The invention relates to a dust-extracting system, particularly for routing cutters, having an extracting arrangement that acts upon a working region by means of a vacuum.

Provision is made for an essentially funnel-shaped hollow body (1) with an aperture (1a) to be associated laterally with the working aperture (3) of a sole plate (2) in such a way that a space above the said working aperture (3) has the funnel-shaped hollow body (1) at least partially engaging round it.

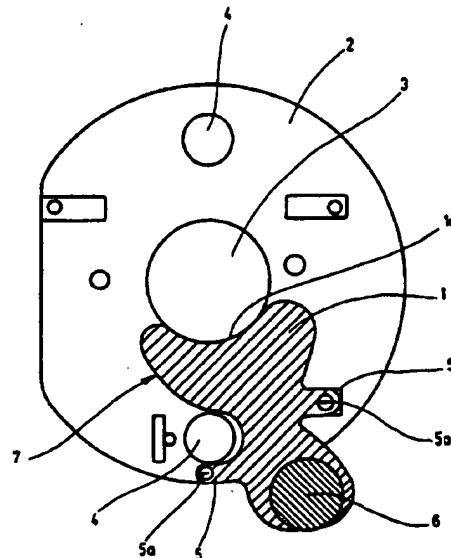
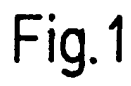


Fig.1

GB 2 328 642 A



**Dust-extracting system for routing cutters**

The invention relates to a dust-extracting system for routing cutters, which has the features mentioned in the pre-characterising clause of claim 1.

**Prior art**

In working operations with routing cutters, dust and chips from the workpiece occur on a large scale, and these remain on the said workpiece because of its horizontal disposition, and thus impair the view of the cutting surface. It is therefore necessary, particularly when machining wood, to remove the chips and dust from the workpiece quickly and, as far as possible, completely.

Extracting devices are commonly known. Thus, DE-OS 44 07 436 describes a routing cutter in which the sole plate of the cutter is constructed as a hollow body and which has, at the working aperture, slots through which the dust and chips from the workpiece can be extracted. Extracting devices of this type are expensive from the production engineering point of view and therefore lead to high prices which are only justified and acceptable in the professional sphere of use. In the hobby or do-it-yourself enthusiast's field, on the other hand, there is a lack of dust-extracting systems which are suitable, effective and easy-to-fit but which remove dust and chips from the cutting surface in an effective manner and do not hinder the changing and fitting of cutting heads. For this purpose, plastic hoods are often provided which, for their part, have the disadvantage that they become coated with dust and chips because of electrostatic charges. Because of this, a clear field of view of the cutting surface is likewise not possible. Dust-extracting systems of this type which are attached afterwards also hinder the use of parallel stops or copying guides so that, frequently, either the

application of the routing cutter is restricted or else it is necessary to dispense with the use of the dust-extracting system.

The object of the present invention is therefore to overcome the disadvantages of the prior art.

#### Advantages of the invention

The dust-extracting system according to the invention for routing cutters, which has the features mentioned in claim 1, offers the advantage that it is of simple construction and produces a high suction power because of the geometrical shape. The dust-extracting system according to the invention is simple to produce and consists, at most, of two parts, namely the dust-extracting nozzle and, optionally, the suction union. The dust-extracting system according to the invention can be attached afterwards to conventional routing cutters and can remain on the routing cutter during any necessary tool changes and the like.

The dust-extracting system according to the invention can be produced from a metallic casting material or from plastic. In either case, simple manufacture from just a few individual parts is possible.

Since, moreover, the extracting system is fitted laterally, a parallel stop on the routing cutter can be effectively clamped fast, without intermediate clamping of the extracting system being necessary. Slipping of the routing cutter during the cutting operation is thereby avoided. In a preferred refinement, a suction union is guided away upwards, so that a suction hose connected to the said suction union can more easily be guided with the latter over the workpiece.

Other advantageous refinements of the invention emerge from the remaining features which are mentioned in the subclaims.

#### **Drawing**

The invention will be explained in greater detail below, in one exemplified embodiment, with the aid of the appertaining drawing, in which:

figure 1 shows a plan view of a diagrammatic cross-section of a dust-extracting system.

#### **Description of the exemplified embodiment**

Figure 1 shows, in a plan view, a cross-section through a dust-extracting system according to the invention. Within the limits of the present description, an explanation is to be given only of those components which are essential to the invention. The structure and function of routing cutters are commonly known.

Around a working aperture 3 in the sole plate 2 of the routing cutter there is disposed, as the dust-extracting nozzle 7, an essentially funnel-shaped hollow body 1. The hollow body 1 engages only partially round the working aperture 3. The underside of the dust-extracting nozzle 7 is flattened, so that the said dust-extracting nozzle 7 lies flat on the sole plate 2. The upper side of the dust-extracting nozzle 7 may likewise be flattened, so that two faces which are orientated parallel with one another are formed. As a result, the view of the workpiece or cutting surface is essentially unrestricted.

An opening 1a in the dust-extracting nozzle 7 encompasses an angle of up to 180°.

and in the example, of about  $120^\circ$ , of the working aperture 3. The front region 1a of the dust-extracting nozzle 7 is constructed in such a way that the radius of the working aperture 3 is kept clear. The aperture 1a is adapted in shape to the working aperture 3. A suction union 6 is disposed opposite the aperture 1a. A vacuum source can be connected to the suction union 6. When the vacuum source is connected, chips occurring in the region of the working aperture 3 are extracted radially via the aperture 1a.

There is an angle of about  $90^\circ$  between the suction union 6 and the dust-extracting nozzle 7. According to other exemplified embodiments, which are not shown, the union 6 may also be in alignment with the dust-extracting nozzle 7, or be connected to the latter in an articulated manner. As a result of this, the connection with the vacuum source can be easily varied - depending upon the workpieces to be machined.

Attached to the dust-extracting nozzle 7 are two tongues 5 which are secured to the sole plate 2 by means of screws and screw threads 5a. Operation of the routing cutter is not hindered by the dust-extracting system according to the invention, since guide pillars 4 for the cutting head remain freely accessible. Because of the lateral arrangement of the dust-extracting nozzle 7, handling of the routing cutter is not impaired. Thus, for example, it is possible to change tools without demounting the dust-extracting nozzle 7. Because the dust-extracting nozzle 7 is fixed on the sole plate 2 via the screwed connection 5, a change in position during use in the intended manner is ruled out. As a result of this, a high degree of safety is guaranteed.

**Patent claims**

1. Dust-extracting system, particularly for routing cutters, having an extracting arrangement that acts upon a working region by means of a vacuum, **characterised in that an essentially funnel-shaped hollow body with an aperture is associated laterally with the working aperture of a sole plate in such a way that a space above the said working aperture has the funnel-shaped hollow body at least partially engaging round it.**
2. Dust-extracting system according to claim 1, **characterised in that an underside of the hollow body lies flat on the sole plate.**
3. Dust-extracting system according to one of the preceding claims, **characterised in that an angle of opening of the front aperture of the funnel-shaped hollow body amounts to between 90° and 180°.**
4. Dust-extracting system according to one of the preceding claims, **characterised in that, for the purpose of forming a dust-extracting nozzle, the hollow body comprises a suction union which can be connected to the vacuum source.**
5. Dust-extracting system according to one of claims 1 to 2, **characterised in that a suction union is disposed opposite the front aperture.**
6. Dust-extracting system according to claim 3, **characterised in that the suction union is at an angle of about 90° to the funnel-shaped hollow body.**

7. Dust-extracting system according to one of the preceding claims, **characterised in that** the suction union is disposed on the hollow body in an articulated manner.
8. Dust-extracting system according to at least one of the preceding claims, **characterised in that** the hollow body has at least one tongue via which the said hollow body can be secured to the upper side of the sole plate.
9. Dust-extracting system according to one of the preceding claims, **characterised in that** the hollow body consists of a metallic casting.
10. Dust-extracting system according to one of the preceding claims, **characterised in that** the hollow body consists of a plastic moulding.
11. Dust-extracting system substantially as herein described with reference to the accompanying drawing.





Application No: GB 9818437.7  
Claims searched: 1-11

Examiner: Jason Scott  
Date of search: 14 October 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): B5L (L32, L38, L43Q)

Int Cl (Ed.6): B27C (5/10); B27G (3/00)

Other: Online: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0676264 A1 BLACK & DECKER See page 3, lines 1-6 and figure 1	1, 2, 4, 7, 9 & 10
X	WO 84/01320 A1 OLSEN & OLSEN See page 12, paragraph 2 & figures 8 & 9.	1, 4, 6, 7 & 10
A, P	US 5678965 APPLETON PAPERS See column 3 lines 39-45 & figures 2 & 3.	1, 2, 4, 6, 7, 9 & 10
X	US 4821365 CHARTERS See column 4, lines 43-52.	1-4, 6, 7, 9 & 10

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

DERWENT-ACC-NO: 1999-123795

DERWENT-WEEK: 200024

COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: Vacuum dust extraction system for routing cutters

INVENTOR: LOEWE, J

PATENT-ASSIGNEE: BOSCH GMBH ROBERT[BOSC]

PRIORITY-DATA: 1997DE-1038091 (September 1, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
GB <u>2328642</u> A	March 3, 1999	N/A	009	B27C 005/10
DE 19738091 C2	April 20, 2000	N/A	000	B27G 003/00
DE 19738091 A1	March 18, 1999	N/A	000	B27G 003/00
GB <u>2328642</u> B	December 15, 1999	N/A	000	B27C 005/10

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
GB 2328642A	N/A	1998GB-0018437	August 24, 1998
DE 19738091C2	N/A	1997DE-1038091	September 1, 1997
DE 19738091A1	N/A	1997DE-1038091	September 1, 1997
GB 2328642B	N/A	1998GB-0018437	August 24, 1998

INT-CL (IPC): B27C005/10, B27G003/00

ABSTRACTED-PUB-NO: GB 2328642A

BASIC-ABSTRACT:

NOVELTY - A funnel-shaped hollow body (1) has an aperture (1a) which is associated laterally with the working aperture (3) of a sole plate (2) in such a way that a space above the working aperture has the funnel-shaped hollow body engaged around it. A suction unit (6) at the bottom of the body is connected to a vacuum unit.

USE - The extraction system is designed to remove dust and small debris from routing cutters.

ADVANTAGE - The extraction system has a simple construction and produces a high suction power because of the geometrical shape. The hollow body can stay connected to the routing cutter during necessary tool changes. The extraction device has few parts and so is easy to manufacture.

**DESCRIPTION OF DRAWING(S)** - The drawing shows a plan view of a diagrammatic cross-section of the dust extracting system.

1 Funnel shaped hollow body

1a aperture

2 Sole plate

3 Working aperture

6 Suction unit

**ABSTRACTED-PUB-NO:** GB 2328642B

**EQUIVALENT-ABSTRACTS:**

**NOVELTY** - A funnel-shaped hollow body (1) has an aperture (1a) which is associated laterally with the working aperture (3) of a sole plate (2) in such a way that a space above the working aperture has the funnel-shaped hollow body engaged around it. A suction unit (6) at the bottom of the body is connected to a vacuum unit.

**USE** - The extraction system is designed to remove dust and small debris from routing cutters.

**ADVANTAGE** - The extraction system has a simple construction and produces a high suction power because of the geometrical shape. The hollow body can stay connected to the routing cutter during necessary tool changes. The extraction device has few parts and so is easy to manufacture.

**DESCRIPTION OF DRAWING(S)** - The drawing shows a plan view of a diagrammatic cross-section of the dust extracting system.

1 Funnel shaped hollow body

1a aperture

2 Sole plate

3 Working aperture

6 Suction unit

**CHOSEN-DRAWING:** Dwg.1/1

**TITLE-TERMS:** VACUUM DUST EXTRACT SYSTEM ROUTE CUT

DERWENT-CLASS: P63

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1999-090639